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A Message from the **ADMINISTRATOR**

This is the first issue of RURAL LINES. REA plans to publish this magazine monthly in order to bring you facts about the rural electrification and rural telephone programs.

REA, as a program of benefit to all of the people of America, and especially those in rural areas, is only as good as its relationship with its borrowers. RURAL LINES will be one way in which we can tell you first hand what we are trying to do and why. If the facts remain hidden, we know that there can be only misunderstanding, suspicion, and controversy, none of which help make for an effective program.

RURAL LINES is only a single part in this program to provide for a free flow of information. We shall continue to have information available to anyone who will ask for it.

Parallel with the inauguration of the magazine, we are working to stimulate a flow of information from the borrowers to us. The organization of our advisory committee is one important step in that direction. RURAL LINES' second job is to serve as a clearing house of ideas among borrowers. We hope to be able to report on the good things that you and your association or company are doing as a means of helping somebody else do a better job. This is bound to be a help in protecting the fine loan repayment record that has been set up to date.

This idea exchange—which to be good needs your help—will have reports of value to directors, managers, or employees of REA borrowers, whether electric or telephone. Copies will be sent to each borrower office, and each director will receive a copy at his home address.

RURAL LINES welcomes your comments, suggestions, criticisms, and contributions. Likewise, it urges you to make use of anything that's printed in the magazine in any way that will be of value to you in your newsletter, paper, or in any other way.

We hope that you will continue to be our reader. We will do our best to make RURAL LINES interesting and useful.

A cursive signature that reads "Arthur Nelson".

LOAN RATE MAINTAINS HIGH LEVEL

By April 30, REA electrification loans during the present fiscal year had gone beyond the \$130 million mark.

Some States were running low on allotments available to them under the formula set up in the Rural Electrification Act, and REA was making plans to draw on the \$45 million contingency fund provided by Congress to meet such a situation.

On the basis of the 10-month record (July 1953–April 1954), it appeared that the volume of electric loans for the year ending June 30, 1954, would reach at least \$165 million. This is about the same level as in each of the past 2 fiscal years.

For the 10 months, there were 252 electric loans, totaling \$134,288,100. This includes \$29,186,795 for generation and transmission, of which the largest was a \$9,600,000 loan to the Dairyland Power Cooperative in Wisconsin.

In April, REA made 37 electric loans for a total of \$14,809,000. The complete list of April loans appears on page 31.

During March, REA placed in effect a simplified system of handling electric loan applications. The object is to speed up handling of applications and cut down on involved paper work formerly required for all REA loans.

Under the new system, a short-cut procedure will apply to about one-third of REA's electric loan applications. A borrower meeting certain financial and operating standards will be eligible for one loan a year under this procedure, provided the loan does not exceed 20 percent of the total already borrowed from REA.

The following table shows the number and amount of loans approved by months during the present and previous fiscal year:

Fiscal Year, 1952–53

<i>Month</i>	<i>No.</i>	<i>Total loans</i>	<i>G & T loans</i>
July.....	30	\$24,403,000	\$9,656,660
Aug.....	24	9,066,000	969,200
Sept.....	21	8,837,000	437,110
Oct.....	23	10,008,000	3,891,850
Nov.....	25	8,788,000	632,600
Dec.....	28	17,810,400	3,566,558
Jan.....	20	9,967,500	1,360,250
Feb.....	9	5,159,000	448,300
Mar.....	31	14,592,500	2,101,410
April.....	31	9,511,761	855,800
	242	118,143,161	23,919,738

Fiscal Year, 1953–54

<i>No.</i>	<i>Total loans</i>	<i>G & T loans</i>
33	\$17,843,600	\$3,166,911
28	7,916,000	1,380,300
18	6,015,000	167,168
17	7,732,000	564,050
16	7,186,000	647,100
23	11,897,000	413,000
19	21,968,000	9,246,166
24	9,381,000	535,500
37	29,540,500	12,135,850
37	14,809,000	930,750
252	134,288,100	29,186,795

STEPPED-UP POWER USE PROGRAM LAUNCHED AT CHICAGO MEETING

A DRIVE to enlist the interest and salesmanship of the electric equipment industry in a stepped up power use program is under way.

First step in the drive took place March 11, when more than 200 representatives of manufacturers, rural electric systems, and utilities met in Chicago at the invitation of Ancher Nelsen, REA Administrator.

Second step was the creation of a steering committee to develop definite plans for load-building promotions on State and local levels that can be joined in by each participating group.

Members of the steering committee are: William Saylor, Nash-Kelvinator; A. H. Hemker, General Electric Co.; Oliver Kimbrough, manager, Farmers Electric Co-

operative, N. Mex.; J. K. Smith, manager, Kentucky Rural Electric Cooperative; R. W. McClure, Kansas Power & Light Co.; and Joseph A. Busch, Northern States Power Co. Nonvoting members are Fred H. Strong, Deputy Administrator, REA, chairman of the committee, and Russell Gingles, NEMA, secretary.

The opening words of Chairman Strong at the Chicago conference sounded the keynote:

"Today's program is directed principally at interesting those of you who are in the business of making, distributing, and selling electrical equipment. If you can go to work on this market the way we think you can, you'll benefit and so will the rest of us."

What You Can Do To Capitalize on Drive

1. Call on your electrical appliance and equipment dealers. Tell them about your interest in power use promotion and the industry-wide drive that is getting underway.

2. Find out what appliances and equipment your consumers would like to buy. Anyone planning or conducting a sales program will need this information.

3. Use your newsletter, newspaper, or radio to tell your members about any power use plans you can get developed in your co-op or in your State.

4. Get information about appliances and equipment to your mem-

bers. The value of an appliance to the member is the basis for any sales talk.

5. Use your annual meeting or other member meetings to promote your power use campaign. Invite dealers to display at these meetings, for example.

6. Join forces with neighboring electric systems and with your state-wide power use program to promote power use. As a group project, the program is more effective.

7. Use the power use calendar as another means of tying in with the nationwide efforts to stimulate consumer interest in electrical appliances and equipment.

Facts To Help You Interest Dealers

- **LET'S PUT** the farmers' income position in its proper perspective. In 1953, farmers grossed \$35 billion from the farm. This was less than \$2 billion, or 5 percent below 1951 income, an alltime high. It was some \$3 billion higher than in 1950, and 3½ times larger than before World War II.
- **SUBSTANTIAL INCOME** is received by farm people from non-farm sources. In 1953, this was about \$6 billion, as compared with almost \$13 billion net received from farming. Altogether, farm operator families last year had about \$19 billion available for family living or investment over and above farm production expenses.
- **EVEN THOUGH** our farms are now producing at a rate in excess of current total demands, the technological revolution in agriculture must go on if we are to meet the requirements of our rapidly growing population some years hence. In the last 15 years we have added some 30 million people. We are currently increasing at the rate of 2½ million a year. That is equivalent to a new Chicago every 18 months.
- **IN 1950, ONLY** 39 percent of farms had an electric water pump, only 17 percent an electric water heater, only a little over half had an electric washing machine, only 1 out of 8 had a home freezer, and one-third were still without mechanical refrigeration.
- **ALMOST HALF** of all farms in 1950 still used coal or wood for cooking fuel and only 18 percent used electricity for that purpose.
- **LESS THAN HALF** of the farms had piped running water and only one-third had a bathtub and shower.
- **THERE IS ROOM** for improvement among the highest income group—those who sell over \$10,000 worth of farm products a year. One-fourth of these have no electric water pump, less than half have an electric water heater, and only one-third a home freezer. While one-third of these use electricity for cooking, one-fifth still use coal or wood.
- **THE FARM FINANCIAL** situation overall is fairly strong. As of January 1, 1954, agriculture's assets totaled \$156 billion. In 1940, total assets were \$54 billion. Farmers' financial assets—bank deposits, savings bonds, etc.—totaled \$22 billion at the beginning of this year versus \$5 billion in 1940.
- **IN ADDITION** to the big changes that have occurred in farmers' financial status in the last 15 years, there has been a tremendous change in farming itself. We are now producing 44 percent more products with one-fifth fewer man-hours of work. Thus, the output per man-hour in agriculture has risen by over three-fourths in the last 15 years.

(Excerpts from talk by Nathan Koffsky, Agriculture Marketing Service, U. S. Department of Agriculture, at Chicago meeting.)

ginning to show its serious effects. In mid-March the area got a sample of what dry soil and high winds mean. For 14 hours at a stretch, sharp winds blew at a rate of 45 miles per hour with occasional gusts up to 65 miles per hour. The slightly overcast sky had the soft copper glint typical of dust blown areas. Dust from the spring-plowed fields and stands of winter wheat befogged the horizon. The tugging wind slowed highway traffic, whipped skirts, blackened wash on the lines, and stole wide hats.

So far, drought damage has shown itself in three ways: (1) Almost total destruction of the unique sweet Ozark strawberry plantings, (2) almost total loss of tame pasture plantings last year and poor prospects this year, and (3) heavy



S. E. Roberts, Manager, Ozark Electric Cooperative, Mount Vernon, Mo.

cash expenditures by beef and dairy cattle raisers to buy out-of-State feed to carry their herds through the winter.

S. E. Roberts, manager of the Ozark Electric Cooperative, is one of the many in the area who is convinced that it will take a lot more dry weather before conditions approach the crisis stage. The historical weather cycle is all against the continuance of drought for an

indefinite period. On the other hand, there is the old farm saying, "All signs fail in dry weather."

In pasture after pasture the soil conservation ponds hold nothing but swirling dust. But use of rural electricity seems to have suffered little. Between March 1952 and February last year, 7,082 farm consumers used 15,091,232 kwh., an average of 2,130 kwh. for the period. For the same period this year, 7,098 farm consumers used 16,667,750 kwh. or an average of 2,348. Despite drought, strictly farm use of power increased by more than 1 million kwh.

When Ozark Electric Cooperative wants a proclamation from the neighboring city of Mount Vernon, Mo., they have not far to look. Floyd Curmutt, mayor of Mount Vernon, is the co-op power use adviser.

While the area has lost a great deal of farm labor to city industries, farm use of power has tended to replace this labor. Today, the labor trend is being reversed. Workers are coming back from the cities, not to work on farms but to rent or buy small farms for their own use. Some renters, natives of the region, are leaving the farm to go to other areas. At the same time, many Texans from drought areas are moving into the Ozark region.

With this movement and counter-movement, the number of idle services varies considerably from month to month and season to season. However, for the 26 months, January 1952–February 1954, the increase in idle services averages 11 a month. Yet despite this increase, the total number of farm consumers has increased slightly.

In the face of mildly contradictory developments with no major trends clearly shown, one major conclusion stands out. That is, the more electrical appliances a farmer uses, the more he uses electricity, drought or no drought.

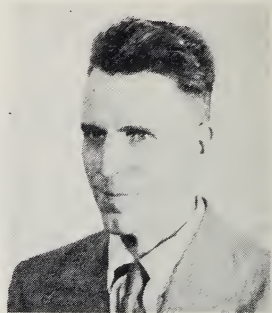
As one check on farm use of power, 10 high users were selected at random and their December bills checked against those of December 1952. Those shown in the table below are not the 10 highest farm users on the system although one or two may be in that category.

December 1952 (kwh.)	December 1953 (kwh.)
1. 978	1,730
2. 1,520	1,485

December 1952 (kwh.)	December 1953 (kwh.)
3. 2,082	1,113
4. 2,432	1,672
5. 1,940	2,000
6. 1,453	1,524
7. 1,050	3,950
8. 1,490	1,497
9. 1,700	1,490
10. 1,202	1,493

About half the farm consumers shown in the above table are dairy farmers. The increased use, however, is not all in dairies. Some dairies showed a decrease. While some went up in power use, others went down. The total for December 1953, is about 3,000 kwh. ahead of the same month in 1952. The farms in the table are scattered widely throughout the system area.

Pioneer in Rural Electrification



MANY of us have forgotten that there was a lot of rural electrification in the United States before REA was started in 1935. The following letter, condensed because of space limitations, is an example of such an effort in Minnesota. Other readers may recall like experiences. If you send them to us, **RURAL LINES** will be glad to publish them. Mr. Werder's group is now a part of the Meeker Cooperative Light & Power Association, Litchfield, Minn.

MR. ANCHER NELSEN,
Washington, D. C.

Dear Sir: * * * (this) electric line was the real birthplace of the REA * * *. In September 1930 * * * Mr. L. E. Kirs-
termann and Mr. Jim Hoerner of Minneapolis signed the very first petition to build a co-op rural electric line (and) to

buy the power at such place as we (could) buy it and be assured of plenty of power. I took the petition to the ---- Power Co., first, and their answer was, "We are not interested in wide spots on the road." So I took this same petition to Dr. Peterson, at that time city mayor of Litchfield, who was very much interested * * *.

We had a meeting with the Darwin village council, to buy an equity in their line, and from the day the line was started in fall of 1930, to this date, there has been no let up in the building of rural co-op lines * * *. But the starting point of all REA was the line we started to Lake Washington * * *. A lot of lines had been built at various places in this U. S. A., short spurts (that) died out, but our start was the push over that started the biggest project in the U. S. A.

Sincerely yours,

EDWARD WERDER,
Minneapolis, Minn.

MEMBERS WILL PAY IN ADVANCE

One day's mail of advance payments measures 18 inches.



OVER 6,000 of the 21,500 members of the Southwest Louisiana Electric Membership Corp., Lafayette, La., pay for their electricity in advance. Their advance payments amount to around \$90,000 a year.

U. J. Gajan, manager, and W. R. Oliver, office manager, estimate that the advance payment plan saves the cooperative at least \$7,500 a year. As evidence, they cite the fact that the same number of office employees which handled the billing of 18,000 members 3 years ago now handles the billing of 21,500. Gajan feels that the advance payments plan is responsible for saving him the salary of two more employees. And the advance payments from the members go into advance payments on the REA loan, resulting in further savings.

Since the co-op uses machine billing, Oliver's production-control charts pinpoint that the big saving in time comes in the processing of mail. In his opinion, any cooperative, large or small, stands to save time in mail processing by using the advance payments plan.

As might be guessed, advance payments did not just happen on this system. On the contrary, the

program was planned with care and promoted with enthusiasm.

The campaign to persuade members to pay in advance got under way in 1947. Here is how the results have grown:

Advance payments:	
1947-----	\$2, 000
1950-----	20, 000
1952-----	55, 000
1953-----	75, 000
1954-----	90, 000

In the area served by the Southwest Louisiana Co-op, farms average around 50 acres in size. This figure is deceptive since the rice growing area has farms which run into thousands of acres. The fact that the co-op averages around six consumers to the mile gives a more accurate picture.

The small farmer in the truck-growing and specialty-farming area has one payday a year. Many of these consumers are in the minimum bill classification. Advance payments have a great appeal to this group because it means only one money order and one payment to handle the bill for a year. There is a like appeal to those with a number of tenant farmers on the land.

Harvest time is when the largest number of advance payments is

made. This can lead to some interesting situations. Take the month of October 1953, for example. The co-op's total billing for that month was \$93,000, but \$71,000 was already in the till before the bills were mailed.



Spanish moss and picturesque bayous are typical of Louisiana.

Advance payments of \$100 at a time are fairly routine but there was one eye-popping occasion when a member planked down \$380 in advance.

To appreciate what has been accomplished, one needs to know a little about the background of the country and the area in which the cooperative operates.

This is the land of the storied Acadians immortalized in Longfellow's *Evangeline*. Some 80 percent of the co-op membership use French as their first language.

The co-op system stretches from Acadia Parish to islands in the blue-tinted waters of the Gulf of Mexico. Agriculture ranges all the way from rice plantations where airplanes are used to plant seed to tiny farms operated by one man and one mule. The level flat lands are cut by bayous and fringed by trees festooned with shawls of Spanish moss.

Everything grows. Cane, cotton,

corn, yams, and rice are the principal crops. Specialty farming abounds with a great deal of truck gardening.

But don't get the idea that tradition and history rule this land. There's electricity in the air as well as on the farm. Oil and gas wells are going down by the dozens. New air-co conditioned office buildings are springing up and multimillion dollar oil refineries are under construction. Oil scouts and survey crews are everywhere.

This is the gusty, open-handed Southwest, riding a boom, describing everything in superlatives and backing up the description with facts.

Cows are the biggest surprise. Beef and dairy herds are everywhere. Winter wheat pasture grows at such an amazing pace that even massed herds do not keep it cropped.

It is against this background that the advance payments plan keeps growing in member acceptance. Here is how the plan is promoted.

The co-op magazine, *Rural Power*, is the principal medium for getting the idea to the membership. Each issue since the plan was started in 1947 carries at least one page about advance payments. There is never less than a page of letters from the members. Here are some samples:

Enclosed find check for \$100 and list me among your members of the advance payment plan. I am well pleased with your service.

LOUIS LEGER,
Palmetto, La.

I am paying my electric bill. I am paying in advance because it is better for me. It saves money and trouble of a three quarter mile walk. My check is in the amount of \$50.

PAUL VIGIE,
Route 4, Ville Platte, La.

I am enclosing \$25 for this month and a few months ahead of time. I save time, money, and writing.

MOISE GULLERY,
Opelousas, La.

In addition to letters and stories about advance payments, the co-op uses from 2 to 3 pictures in each magazine showing members making their advance payments.

To back up the magazine promotion, the co-op sends each member a printed letter with rates and meter reading instructions. Part of the letter is devoted to advance payments and reads:

What do you save?

1. Cost of money order each month.
2. Time it takes to purchase money order.
3. Envelope and stamp for mailing monthly payments.
4. Insures you against delinquent accounts and penalties.
5. Save the co-op money and time and thus saves money for the members.

The next paragraph reads:

Simply prepare your check or money order for as much as you like and mail or bring it to the co-op office. Write your account number on the check or money order. Your ledger card will be posted with the entire amount and each month your bill card will be mailed to you showing the balance of your advance payment in red. At the time your advance payment has been completely used, an amount in black will show on your monthly bill card. At that time you can make another advance payment. If you should be disconnected from the co-op line, any balance to your credit will be returned provided the bylaws of the co-op have been complied with.

As the billing staff sees advances shrink, they send a postal card to the member which reads, "Just a reminder—your advance payment is

getting low. To save yourself money, time, and trouble, mail another advance payment and relieve your mind."

Co-op officials feel that the advance payments plan has helped in reducing billing cost which now averages 21.4 cents a member per month. They think that it has helped to reduce delinquencies and disconnections.

The popularity of Southwest Louisiana's advance payments plan with the membership has attracted considerable interest from other cooperatives in the state. Virtually all of them either have the plan in effect or are planning to start it in a short time.

It seems that rural electrification which pioneered in having farmers read their own meters and figure their bills has come up with another first in the practice of advance payments.



A WHEAT WHOPPER

Wheat grows like crazy and is never harvested. It's too valuable as feed.

M. C. Campbell director of the Southwest Louisiana EMC. for Vermillion Parish specializes in cattle and rice. He says the black dirt in his area is so rich that he never plows before planting winter wheat for pasture. He just scratches the ground with a disk harrow and seeds on top.



Web Allison's **CARTOONS** Spark Rural Power Story

The illustrations in the following article are the copyright property of Webster Allison and the Colorado Rural Electric News. They are reproduced here by courtesy of Mr. Allison and the Colorado Rural Electric News. Republication without the consent of the above is specifically prohibited.

A LOT OF PEOPLE have written or will write the history of rural electrification but out in Colorado there's a fellow by the name of Webster C. Allison whose cartoons will provide the illustrations.

Allison credits Virgil Cory, editor of the Colorado Rural Electric News, as his discoverer and as the one individual who has done the most to encourage him in his gentle kidding of rural electrification. Web's original style of drawing developed without help from art schools or art instructors. In fact, Web still blushes a little when he recalls comments by class instructors at the University of Colorado when he attempted to illustrate a term paper with one of his drawings. As power use adviser and editor of the San Luis Valley newsletter, Allison started drawing cartoons to fill holes in his news col-



"Is this the headquarters of the organization which has spread the powerful fingers of electricity across the countryside, rescued the farmer from benighted darkness, relieved his wife of the back-breaking drudgery of home-keeping, stabilized the rural population and set a pole smack-dab in the middle of my drive-way?"

umns and to give the newsletter some needed illustration.

Web is the name he signs on his illustrations and Web is the name he is known by among the members of the San Luis Valley Rural Electric Cooperative, Monte Vista, Colo. The cartoonist is assistant manager

of the cooperative and has been on the job there in one capacity or another since 1937 with the exception of four and a half years in the Army.

Web's cartoon shown on page 12 has been reproduced hundreds of times yet few people know that it is his product. He drew it in such a hurry for his newsletter a couple of years ago that he forgot to sign his name.

Web's cartoons have been appearing regularly of late in the Colorado Rural Electric News, the publication of the state association. More recently the Colorado statewide has been syndicating the drawings and making them available to statewide newspapers in other states.

Sometimes Web uses actual incidents or stories he has heard as a basis for his cartoons but most of the time he gets off in a corner and concentrates until he turns up an idea. Like all who deal with the mysterious element called humor, he finds himself constantly amazed at people's reactions. He gave up on the idea of trying to analyze what makes people laugh and gives his main attention to the selection of subject matter which best fits his own distinctive treatment. The cartoons here are examples of how he is able to find the lighter side of rural electrification.

There's a question among the Web Allison fans as to whether his cartoons or his captions are the funnier. But one thing is certain, his creative ability is by no means limited to cartoons. In past months Allison has sold several fiction pieces to the Denver Post magazine section and is currently shooting for some of the national markets.

Another of his features now being syndicated to statewide newspapers is a series of illustrated short essays. Here is one sample:



Web calls this one, "Will Electricity Drip Out of Empty Sockets?"

I imagine the first thing we should know about electricity is that we don't know much about it. It has no particular color or size or weight or anything like that. When you get right down and analyze it, it is pretty tricky.

I did know a woman, however, who said she could smell electricity. She came in the office very angry and used this so-called fact as an arguing point. She said she was sniffing around her meter and was sure she smelled a lot of electricity leaking out. At that time, however, I was new in the business and was not qualified to argue with her on a technical point like this. I'm still not.

I am sure you have all heard that corny joke about the lady who was afraid the electricity would drip out of the lamp sockets if there were no bulbs in them. That story is ridiculous, of course, because it is practically no job at all to go around the house and screw lamp bulbs in the empty sockets and then you are SURE that no electricity can fall out.

So let's not get all confused about electricity and what it is and so forth. Let's just use our heads.



The nearly hidden San Luis Valley lies at an elevation of 7,500 feet and its 60-mile length is rimmed by ranges of the Rockies rising to 14,000 feet. Potatoes and truck gardens are the big crops on the floor of the valley with beef and sheep in the foothills. The growing season is a short one with killing frosts as late as June. As a result, farmers push their crops as fast as they can and irrigation is commonplace. In fact, of the some 3,000 accounts served by the rural electric cooperative, around 500 are flood type irrigation pumps.

The self-taught cartoonist was born in Kansas but came to Colorado and the San Luis Valley at an early age. He's a big, gentle, shy man whose over six feet is not readily apparent until you stand beside him. Here is how Web looks to the camera.

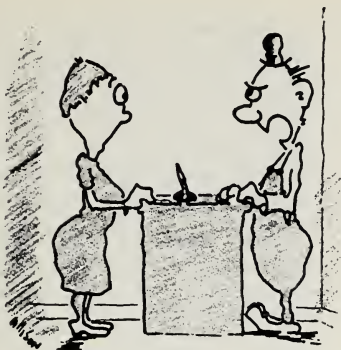
The San Luis Valley rural electric system is more than a little unique in itself. Monte Vista, the co-op headquarters, is more than 150 miles from the nearest railway passenger station. There's railway freight service but the visitor arrives either by auto or by plane.



WHOOO DONE IT?

When a big, fat North Dakota owl decided to perch on an insulator atop a Minnkota Power Cooperative pole near Hoople, it created quite a mystery. The owl yawned, stretched its wings, and wham! It shorted the circuit and absorbed a 69,000-volt charge of electricity. It blacked out 11 substations, and 10,000 farm families without electricity asked, "Whooo done it?"

Thanks to the new carrier system of locating and sectionalizing power interruptions, 10 of the 11 substations were returned to full operation immediately. Radio-directed service crews, dispatched to the exact spot, corrected the outage within minutes. * * * * (Briefed from Minnkota Memo, North Dakota.)



"I'd like to speak to the rabbit
that multiplied my bill!"



"Would you please ask your
engineering man why our lights
blink when Elmer calls the hogs?"



"Forget somethin'?"



"A new safety-device makes
this box practically fool-proof. If
you should try to tamper with the
fuse, the gun pops up and blows
your brains out."



"... served piping hot will make your
husband happy, if you think it's worth it."



"Dern rooster fell in love with
the brooder again."

The Alabama Rural Electric News for February has an interesting report, "The Milk of Human Kindness," by the Baldwin County Electric Cooperative, A. M. Redd, manager. It's all about some of the dairies on the co-op line and can easily be adapted by other co-ops for local use. Mr. Redd says 4 percent of all the farms in Baldwin County are dairy farms and



none of them would be in business except for rural electricity. One member, Franz Schenk, once worked as a dairy hand at \$3 a week. Now his electric milking machines handle 30 cows an hour. Another member, Ernest Sherman, has recently installed a \$4,000 glass pipeline. And there's 71-year-old A. G. Hinshaw, formerly of Iowa. Thanks to electricity, he milks 18 cows twice a day. He plans to retire from dairying at 80 and go in for beef cattle. Member consensus of opinion: "Treat a cow like a lady and she will behave like a lady."

Winnebago Rural Electric Cooperative, Thompson, Iowa, Glenn Bergland, manager, believes in getting them young. The co-op's power use adviser, Art Mitchell, teaches rural electrification to vo-ag students in the Thompson High School. Final lesson was a trip to inspect farm wiring. Mr. Anthony Geiken, a member of the co-op, recently had an article published in Wallace's Farmer titled, "Are You Overloading Your Wiring?"

Northeast Electric Cooperative, Winnsboro, La., R. K. Holladay, Jr., manager, reports the case of a new member who put in electricity. The member, C. L. Vines, immediately bought \$2,242 worth of electrical appliances at one time.

Blue Ridge Electric Membership Corporation, Lenoir, N. C., C. E. Viverett, manager, is offering \$75 in prizes for the best 5 letters on the subject, "Profits from Unusual Uses of Electricity on My Farm." Ought to be a barrel of power use ideas in this one.

POWER EXCHANGE

POWER USE IDEAS ARE POPULAR
HERE ARE SAMPLES FROM



South-Central Rural Electric Cooperative, Lancaster, Ohio, Darwin Kindler, manager, reprints an article from the Westinghouse Engineer, May 1953 issue, which some of us may have missed. It's a sound piece about electricity's potential on the farm of tomorrow with farmers running things by remote control and using a television set to watch the hired-hand plow the south 40.



Western Cooperative Electric Association, Wakeeney, Kans., Leon L. Wick, manager, has a newsletter item about the 1,120-acre Flager farm and its electric appliances. Mr. Flager is proud of his home-made portable air compressor. It is made of oil-well casing with a 1-inch bolt running through the middle of the tank; all seams are electrically welded. Mr. Flager uses the compressor for all the painting and cleaning on the farm and to keep 68 auto and truck tires inflated.

R USE ANGE

UP LIKE SPRING WEEDS . . .
AL ELECTRIC PUBLICATIONS:



Illinois Rural Electric News for February spotlights what four farmers think about electric welders. Consensus is that welders pay for themselves in the first year.



North Pine Electric Cooperative, Finlayson, Minn., L. G. Brabec, manager, presented \$10 credits to 11 members who purchased food freezers and \$7 credits to 5 members who installed automatic clothes driers in 1 month.

Woodbury County Electric Cooperative Association, Merville, Iowa, has a sparkling newsletter for February. Dale G. Schreiner, manager, and Ben Verhoef, electrification adviser, pull out all the stops in favor of hay driers and of heat lamps for pig brooders. As a special service to members, Mr. Verhoef publishes insurance company requirements for brooding with heat lamps. The information



which might save farmers thousands of dollars tells how to avoid costly fires. Other co-ops may want to publish similar information from local insurance companies.

Middle Tennessee Electric Membership Corp., Murfreesboro, Tenn., W. W. McMaster, manager, is sponsoring an essay contest in 24 high schools in its 4-county service area. The grand prize is a \$100 savings bond. The subject is: "Electric Service From Our Cooperative and the Effect on Our Community".

How much water does a farm family use in a month and how much does it cost? **Hancock-Wood Electric Cooperative**, North Baltimore, Ohio, Powers Luse, manager, used two water meters and an electric meter for a month on the George Treeces Farm. They discovered that 4,010 gallons of water were used in the home and 11,655 gallons in the barn and milkhouse. It took 35 kwh to pump the 15,665 gallons of water at a cost of 51 cents. Seems to indicate that demonstration and publicity about results rank highest among the different ways of promoting the use of power.

One Manager's Experience May Help You . . .

CUT COSTS, IMPROVE SERVICE

By J. S. ROBBINS, Manager, Jefferson Davis Electric Cooperative,
Jennings, La.

If your co-op is like ours, you are always seeking ways to reduce costs and improve service.

We found from experience that good service pays for itself—in better member and public relations, and in actual cash savings to the co-op. We saved money and provided better service by setting up a systematic operations and maintenance program, and by making a system engineering study. Our records tell the story.

We began by analyzing all of our work, developing records, and regularly examining them for opportunities for improvement. Our management wanted to cut expenses and improve service at the same time.

Our lines are in an area along the Gulf of Mexico where there's lots of lightning. Every time we used to have a thunderstorm, complaints would pour in. Lightning meant trouble for us and the farmers we serve until we studied our system carefully. Now we have additional lightning arresters and sectionalizers, so that outages and outage time are down to a minimum.

Now we keep records of all outages and their causes. We summarize them in four groups—individual member outages, short tap, main line, and transmission line. Often these records give a clue to other trouble sources. We keep detailed records on transformers, meters, oil circuit reclosers, and other equipment.

Here is one example of how these

records paid off in cash savings. At one time it was costing about 16 cents a mile to operate each truck. A study of truck operations revealed expenses we could reduce or eliminate. We have cut truck operating costs almost in half.

In 1948 we made a system engineering study. It showed the load our system was serving and could serve without hardship, and provided estimates of future load growth. Some of us felt that we never would reach the ultimate of 3,300 consumers forecast for the 10-year period. But we have, and our load is still growing.

We have used our system study to anticipate trouble before it could happen, and to make improvements for better service.

Every two years we adjust the study, and it is always under review. This way we are able to handle growing loads and keep in step with the needs of communities we serve. At present, we are using the study as a basis for making improvements in three areas.

The seasonal peak on our system comes in July and August, when refrigerators, fans, ventilators, air conditioners, and water pumps are operating at peak levels. We serve many small rural industries, including fish and shrimp processors.

Complaints used to pile in. But since we adopted a systematic maintenance program, and made our system study, we have improved the quality of our service. Now members write in to praise the co-op.

THE LINEMAN



CHAINS PROTECT YOU, TOO

By **H. E. Brawner**, Chairman of the National Rural Electrification Job Training and Safety Conference Planning Committee of 1954

Sometimes the sin of omission is as bad as the sin of commission. At least that is implied in a Kentucky law which requires the use of safety chains when a truck is pulling a trailer or air compressor.

Safety chains, long enough to fasten around the trailer tongue, should be fastened permanently to the rear end of the truck. Then all you have to do is hook up the chain to the trailer behind the hitch. The chain should be strong enough to hold the trailer, if the regular trailer connection comes unfastened, until the truck driver can stop his vehicle.

Trailers which have broken loose have been the cause of too many accidents. A co-op would not want to be responsible for the death or crippling of someone through care-

lessness—by not using a safety chain.

Check the laws or traffic regulations in your own State for requirements and regulations on methods of using chains. But whether chains are required legally, remember that their use is a good safety practice.

FARM SAFETY WEEK

The week of July 25-31 has been designated as National Farm Safety Week by the President. The purpose of the week is to encourage farm families to be aware of accident hazards and to promote safety consciousness. It's a good time to check electrical—and other—hazards and eliminate unsafe practices.

FAHRENHEIT AND CENTIGRADE

(Reprinted from "The Clumsun News," Texas)

We are all familiar with checking temperatures with the Fahrenheit thermometer, but sometimes we do not fully understand the centigrade thermometer.

Why should the lineman, foreman, or serviceman need to understand the centigrade thermometer? Most thermometers used in industry and on large transformers, voltage regulators, etc., are centigrade. A ground fault or overload can raise the temperature to a dangerous degree and yet fail to blow a fuse or trip an automatic switch. If this condition con-

tinues, the result could be a long interruption of service and loss to the co-op, amounting to a large sum.

The employees who from time to time are around this equipment may be able to prevent this loss by discovering the high temperature in time to report the matter to proper authorities and the trouble can be corrected.

First, let us look at the thermometers. With the Fahrenheit, water boils at 212° at sea level. Water freezes at 32°. Zero is 32° below the freezing point of water.

Next, let us consider the centigrade thermometer. Water boils at 100° at sea level. Water freezes at zero (100° lower than boiling), and below the freezing point of water is below zero.

Next, let us note that the scale of the Fahrenheit is divided into 180° between the freezing point of water and the boiling point. The centigrade scale is divided into 100° between the freezing point of water and the boiling point.

The formula for changing one type of thermometer reading to the other is this: To change centigrade to Fahrenheit, multiply centigrade reading by 9/5 and add 32.

Suppose a transformer has temperature of 95° centigrade:

$$\text{Step 1. } 95 \times 9 = 855$$

$$\text{Step 2. } \frac{855}{5} = 171$$

$$\text{Step 3. } 171 + 32 = 203$$

In this case the transformer would have a temperature of 203° on a Fahrenheit thermometer, which is getting close to boiling.

To change Fahrenheit to centigrade we reverse the procedure. Subtract 32 from the Fahrenheit reading, and multiply by 5/9.

Let us take 212° Fahrenheit and convert it to centigrade:

$$\text{Step 1. } 212 - 32 = 180$$

$$\text{Step 2. } 180 \times 5 = 900$$

$$\text{Step 3. } \frac{900}{9} = 100$$

This formula will work with any reading on the thermometer.

Here Are Some Unsafe Work Practices Observed Among Co-op Employees

1. Linemen working on the ground and driving or riding on trucks with hooks on.

2. Riding on fenders or running boards of truck while out on job.

3. Handling energized secondary and service wires without rubber gloves.

4. Working on poles carrying energized primary and in reaching distance of phase wires without rubber gloves.

5. Working on deenergized line without proper grounds on line. (Jumper wire connected to neutral at place where line is deenergized is not considered proper ground.)

6. Men working dangerously close to one another when felling and

trimming trees for Right-of-Way.

7. Trimming trees near energized line without rubber gloves.

8. Carrying A-Frame of line truck suspended on winch line.

9. Employees working or standing under A-Frame when suspended on winch line and also under load suspended on winch line.

10. Throwing tools and materials to and from linemen on poles.

The above listed unsafe practices are only a few of the many that are causing accidents in the line craft. Try making a list of the unsafe practices you discover in your crew and note how easy and simple it would be to eliminate these hazards.

Reprinted from "Florida Safety News."



From the Wyoming Short Circuit

LOAN PROGRESS

REA telephone loans for the first 10 months of the present fiscal year topped the total for any full year in the previous history of the program.

By April 30, loans for the year totaled \$52,227,000. This was 10 million more than the 1953 total of \$41,973,000. For fiscal year 1952, loans approved were a little more than \$43,000,000.

April loans of \$5,911,000 were approved to 19 borrowers. See the list

of telephone approvals on page 31.

Loans made by REA through April 30, 1954, bring the cumulative total for the telephone program to \$168,388,218 and 271 borrowers. These borrowers will serve more than 200,000 new subscribers and will bring improved service to some 170,000 present subscribers. Altogether well over 100,000 miles of line will be constructed or rebuilt with these loans.

"The Telephone and the Farmer"

Here's how you can get a loan copy of *The Telephone and the Farmer*, REA's color movie on the telephone program.

Write to your Area Director, REA, if you are an electrification borrower, or your Section Office in the Telephone Operations and Loans Division, if you are a telephone borrower.

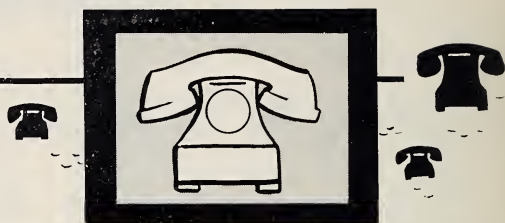
Groups which are not borrowers may arrange bookings through the Motion Picture Service, U. S. Department of Agriculture, Washington 25, D. C.

The movie tells the story of how one community found the answer to its rural telephone problem. It is suitable for showing to all types of rural audiences, but is particularly useful to those interested in getting modern telephone service extended to rural areas.

DIAL TONES is the name of the newsletter the Millington Telephone Co., Millington, Tenn., sends to its subscribers with their monthly billings.

RURAL LINES is looking for good ideas to pass on to other borrowers. So, if you have a telephone newsletter, please put us on your mailing list.

REA LOANS TO TELEPHONE COOPERATIVES



SINCE THE BEGINNING of the REA telephone program, loans have been made to approximately 135 telephone cooperatives, mutuals and other types of nonprofit enterprises. About 25 of these were made during the current fiscal year. This represents slightly more than 50 percent of all borrowers. The total amount loaned to nonprofit organizations represents substantially more than half of all loans to date.

Since the beginning of rural telephony more than 50 years ago, nonprofit rural enterprises have been organized throughout the country to serve farmers and other rural residents. Generally, the organization of such telephone enterprises arose out of the need for providing an essential service that was not otherwise available. Although during recent years many of these companies have provided a rather low quality service, they have persisted.

The needs that gave rise to these cooperative and mutual telephone systems still exist in many rural areas of the United States. Just as was true more than fifty years ago, cooperative telephone systems are an indication of the strength and stamina of rural people. These people can be expected to continue to organize and develop public

services of various types in order to satisfy their needs if others are not willing or able to provide such services for them.

It is not the policy of REA to promote any particular type of organization. It is our purpose and aim to finance adequate, modern telephone service regardless of the type of organization which happens to be a loan applicant. The Rural Electrification Act gives equal preference to existing companies and nonprofit organizations. Congress has admonished REA to encourage existing systems to provide needed rural telephone service wherever they are willing and able to do so.

Existing Systems Aided

Accordingly, REA has sought to encourage existing companies, both commercial and nonprofit, to expand and improve their facilities in order to bring more adequate telephone service to the widest practicable number of rural subscribers. Where private financing is not available, or where the terms of private financing are unsatisfactory to the borrower, REA upon request will make loans, on an economically feasible basis, to existing systems regardless of their type of organization. Where existing systems have not indicated a willingness or the

ability to improve and expand their services, REA will make loans to new organizations, either nonprofit or commercial, in order to fill the needs.

It is recognized that in most cases rural telephone systems need to be consolidated. Regardless of the type of organization, efficient operating units must be developed; otherwise it will be impossible to finance the type of service rural people have the right to expect. In some instances, farmer lines and small companies may be available without charge to larger organizations that wish to acquire them and to improve and extend their services. In other situations, small systems must be purchased and consolidated into larger, more efficient organizations. This cannot be done, however, without the cooperation of the owners of such existing systems and without their willingness to accept modest and fair prices for the facilities to be consolidated. In the acquisition of existing facilities, REA will not make loans for more than our appraised value of such facilities.

Assistance to New Organizations

In instances where it is determined that a new organization is necessary in order to provide adequate telephone service, REA will continue to provide technical assistance insofar as resources permit. A limited number of REA field personnel are available to assist community groups and existing telephone companies in determining their needs and in developing appropriate applications if loans are desired.

REA's policy and procedural statements have been revised and, during the past several months, the

REA staff has revised all of the bulletins that have been used in explaining the program and assisting borrowers in developing applications. These materials describe REA policies and procedures necessary in forming a new organization. In addition, there will be a packet of materials available on request for both nonprofit and commercial organizations which explains in detail the various requirements and procedures that must be followed in developing an application for an REA telephone loan. The motion picture, "The Telephone and The Farmer," is available for use by rural groups which wish to develop community-wide interest in rehabilitating their telephone service.

Industry Cooperation

It must be recognized that any type of telephone organization, either existing or new, must have the cooperation of adjacent companies and the telephone industry generally. Without this cooperation, it cannot obtain operator assistance when desired, extended area service with adjacent community centers and long line or toll service. It is important, also, that these services be provided on a basis which the small companies can afford. Cooperation is needed in order to develop standards and patterns for providing such services that will be conducive to the economy and efficiency of the small system.

The need for lower costs and more reasonable rates is a paramount consideration in most rural areas. Generally, existing systems that are now serving the larger towns and community centers can serve surrounding rural areas more economically than a new organization with-

out these more densely populated areas. Consequently, the existing systems that serve the towns and community centers should be encouraged wherever possible to expand their facilities in order to serve the widest practicable number of rural subscribers.

Role of Electric Cooperatives

In many communities the rural electric cooperatives have furnished leadership and experience in the organization of new telephone enterprises. They recognize the need for good telephone service as an adjunct to good electric service. This same need exists in connection with practically every phase of rural life. Undoubtedly this interest on the part of the electric cooperatives will continue and new organizations will be developed where necessary to provide adequate communication services.

In those instances where rural people have inadequate service, or no service at all, it is recommended that an appropriate committee be appointed to contact the nearest telephone company that might be willing and able to extend and improve its service. Consultation with this company will determine its interest in serving the areas which need improvements and extensions. If an existing company cannot be interested in serving the areas in question, appropriate steps may be taken to investigate the desirability of forming a new organization. At this point rural electric cooperatives which are aiding in the development of telephone service should make certain that all activities are in line with recommended REA procedures. This will save confusion and much time at later stages in

the development of the telephone enterprise.

Care should be exercised to keep in step with REA procedures and to make no commitments that are not in accordance with loan requirements. Rural electric cooperatives financed by REA should be particularly careful to avoid making loans to new enterprises and should advise against the purchase of existing systems until they have been appraised and approved by REA as a part of the loan process. Each step should be in accord with REA procedure and with the advice and counsel of an REA field representative.

Joint Operation

In some cases rural electric cooperatives have decided to jointly operate and manage a telephone system serving a part or all of the electric cooperative's service area. In general, experience to date indicates inadvisability of this practice. Expected economies visualized as a result of such joint operation have not materialized to any substantial extent. It is the feeling of most managers that the electric system is a full-time managerial responsibility and that a telephone system likewise will take the full time and attention of a separate staff. There are exceptions to this general observation.

Rural electric cooperatives may wish to sponsor and jointly develop a rural telephone system with the aim of separate management as the telephone enterprise is developed and ready for operation.

Although REA generally does not advise joint operation and management of electric and telephone enterprises, there are instances where joint operation may be the only way in which rural people can

obtain adequate telephone service. Such special circumstances will be considered as a part of the loan procedure and where it appears that the joint operation and management is advisable, REA will interpose no objection.

Summary

It should be clear that REA is not sponsoring any particular type of organization as a basis for the REA loan program. It is felt that existing telephone enterprises in many instances can carry out a program of rural service more effectively and efficiently than a new organization. However, where existing systems have not demonstrated a willingness and ability to expand and improve their facilities in order to fill the

needs, REA encourages the development of new organizations in order that rural people generally might enjoy the type and quality of telephone service which they have a right to expect.

Cooperation with the telephone industry is a "must." All telephone service must be coordinated. To initiate this cooperation and coordination, rural groups interested in improved telephone service should first contact the existing company and seek the extension and improvement of existing facilities. REA stands ready to provide economically feasible loans to both existing and new organizations in order to bring adequate telephone service to the widest practicable number of rural subscribers.

New Contract for Telephone Co-ops

Marking another forward step in its efforts to simplify and speed up telephone loan procedure, REA has announced the adoption of standard forms of loan contract and mortgage for first loans to new telephone co-op borrowers. Previously legal documents were specially drafted to fit each co-op borrower, although standard loan contract and mortgage forms had already been devised for commercial-type telephone borrowers and all electric borrowers.

Besides simplifying the process of making telephone loans to co-op-

eratives, a major purpose of the new standard documents is to clarify loan and security provisions. One new provision specifies that the Administrator may rescind the loan if, a year after signing the contract, the borrower appears unable to meet contract requirements. It also discourages force account construction and spells out standards for area coverage and requirements regarding engineering services and methods of construction.

Borrowers which have already signed loan contracts will not be expected to convert to the new form.



H EAVY GALES and squirrels with a yen to sharpen their teeth on lead cable-sheathing can be a big obstacle in the way of achieving the good telephoneman's goal of round-the-clock, year-round, uninterrupted service for all subscribers.

Where storms and squirrels are a hazard, buried cable may be the answer according to officials of the Orange City Telephone Co. of Winter Park, Fla.

This rural telephone company cut over its new REA-financed automatic dial system on January 9, bringing service for the first time to 219 rural families previously without telephones, and improved service to 149 existing subscribers. This company is owned and operated by the Winter Park Telephone Co. C. H. Galloway is president of both companies, and his sons, Joe and Allison, are vice president and secretary, respectively.

The Galloways know full well that not everyone in the industry will concur with their vote for buried cable. They even concede that it isn't suitable for all plants under all conditions. But regarding its advantages to their particular system they have no doubts. They are dead-sure buried cable is helping the Orange City Telephone Co. provide its rural subscribers with

more dependable telephone service and with lower maintenance costs than was possible with the aerial cable formerly used.

The Galloways speak from long experience, the family having been in the telephone business since 1912. C. H. Galloway, senior, first began experimenting with buried cable for subscriber distribution within



In Lake Helen, Fla., buried cable avoids trees, moss and power lines.

the city limits of Winter Park. There the Galloway clan built and still operate the Winter Park Telephone Co., which now has more than 7,000 stations. Use of buried cable was new and unproved in Florida back in 1916, but the senior Galloway thought he saw in it an opportunity for giving better service and saving money.

Experience with buried cable on the Winter Park system convinced the Galloways that it would be cheaper and better for the Orange City Telephone Co., too. That's why this rural telephone company "went underground" with the new dial plant that it built with the aid of REA loans totaling \$168,000.

In a large part of the area served by the Orange City Telephone Co. it is possible to plow a trench for the cable, feed the line into the ditch, and bury the cable about 30 inches underground all in one operation.

The 5-mile stretch of cable through the farming country between Orange City and Lake Helen was all laid that way. Company records show that it cost 10 cents a foot to bury the cable along this stretch. That's less than the initial cost for putting up aerial cable would have been along the same route, company officials state.

Besides, it's much faster, under such ideal conditions, to bury the cable, according to Al Galloway, who is engineer for the Orange City system as well as secretary for both companies. He estimates that it's about 10 times as fast, and points out that speed is a big factor in holding down labor costs.

When the scene of the digging moves into town the going isn't so easy. Then the digging has to be done with pick and shovel to avoid tangling with water mains, sewage

pipes, or roots of trees prized by their owners. So the cost of putting cable in place naturally will go much higher in small towns. Bill Burton, accountant for both systems, reports that installation cost runs from 18 to 25 cents a foot under those conditions. Even at that price, officials of the Orange City company feel that the reduction in maintenance costs from buried cable more than compensates for the extra expense of putting it underground in the small towns within their rural system.



This machine digs ditch, lays and buries cable in one operation.

Photo by C. A. Sherman, Orange City, Fla

By burying its cable, the Orange City Telephone Co. has put its biggest maintenance troubles to rest, the Galloways say. They are backed in their enthusiasm by plant manager Johnny Henderson, who trouble shoots for both systems.

"I can sleep nights now that we've buried the cable," Johnny said with feeling. "It used to be a race between us and the squirrels. When it wasn't the squirrels it was likely to be a hunter. In the hurricane season it could be a flying roof or a tree snapping the cable. A big enough blow can, of course, uproot a tree and bring up the buried cable

with it—but that will happen only about once in a hundred as compared to the times aerial cable is mowed down by broken branches or stray bullets.”

The Orange City system would like to go 100 percent underground, even to using lead covered single-pair buried cable instead of drop wire to lead into the homes of subscribers. In sparsely settled areas this would be impracticable. Under such conditions, open wire construction is used throughout as being more economical.

Where subscribers live near cable lines, the company offers to connect their homes with buried single-pair cable if the property owner wants it and will provide a trench across



Subscribers who supply trench for cable get rid of overhead wires.

Photo by C. A. Sherman, Orange City, Fla.

his property to hold the cable. The cost of digging and backfilling this trench is the only additional cost to subscribers of the Orange City Telephone Co., besides the normal installation charge for putting in a

phone. General practice with other companies is to charge the subscriber the difference in cost between the cable installation and the cost of a normal aerial installation.

This generous offer was made for farm dwellings located near the cable lines as well as for homes in the rural communities of Orange City, Cassadega, and Lake Helen. To date about 15 percent of the subscribers of the Orange City Telephone Co. have accepted the proposition. The Galloways wish that more subscribers had responded. They would like to have as little of their system as possible exposed to the ravages of windstorms and squirrels. To persuade future subscribers, they use as selling points the more dependable service provided by buried cable and the elimination of unsightly overhead wires.

Requiring the subscriber to provide his own ditch and backfill for burying the cable not only saves the company the expense of the excavation but also relieves the company of any liability for damaging the lawn or plantings. It likewise makes it more likely that the homeowner or farmer will remember where the cable is—and so be able to avoid the cable when he is digging.

Cable Has Limitations

While they are a hundred percent for buried cable, the Galloways are not too partisan to recognize that it has limitations which would make it less suitable for some other systems. In mountainous country, the ups and downs make it more costly to bury the cable, for example. In rocky soil the cost of blasting or chiseling a path through the ground could make buried cable prohibitive. In other cases, the chemical composition of the soil or the presence of a trolley system in the neigh-

borhood can set up a chemical or electrolytic action which will deteriorate the lead sheath around the cable. Eventually this will cause the lead covering to erode, allowing moisture to enter and cause trouble.

Even where conditions are ideally adapted to the use of buried cable, a complication develops now and then. Every once in a while a water company employee pokes a hole through the cable sheathing when he is probing around for a water main. To counteract this hazard, the telephone company has tried to educate water company employees to notify them when the probing starts.

Digging machines used by road builders are another hazard. So are householders who decide to shovel out a hole for burying leaves or trash, and refuse to be stopped by a mere tree root—even if it's covered by lead.

But adding up all those hazards and making allowance for a small section of the Winter Park system where the lead cable sheath is corroding faster than it should, the Galloways are convinced that the balance is heavily in favor of buried cable on their system. Meanwhile they are hoping that a soil analysis will give them a clue as to why a short stretch of cable sheath erodes and perhaps point the way to remedying the situation there.

Operating Costs

A check on operation cost figures for the Winter Park Telephone Co. during 1953 shows that the system spent \$1.34 per station on repairing its buried cable. This amounted to 1.9 percent of the company's total operating expenses during 1953. At the year end, the company's total investment in buried cable amounted to \$490,000, and \$900 was



Maintenance man checks terminal on riser from company's buried cable.

spent on repairing it during the preceding 12 months.

The Orange City Telephone Co.'s new plant hasn't been in operation long enough to make significant figures on maintenance costs for buried cable available yet, but the Galloways are convinced that substantial savings will be shown on it, too.

"We are completely sold on buried cable ourselves. But we don't want to oversell its value for another system where conditions might be entirely different," concludes Manager Joe Galloway. "Not that there's much danger of that. For as long as people in the independent telephone industry are as independent as they are, they'll keep right on making up their own minds on the basis of the facts as they see them.

"As far as our system is concerned, buried cable has proved itself. It requires less tree trimming and fewer repairs than aerial cable. We find it is cheaper to maintain, that it lasts longer, and enables us to provide more dependable service."

Bell Specialists Join REA Staff

Two specialists, one in traffic engineering and the other in transposition and crosstalk, have been added to REA's staff of telephone consultants. They are E. J. Guengerich and A. G. Chapman, who have had long and distinguished careers with the Bell System.

Mr. Guengerich retired from Bell in 1952, after 40 years with that system. Before coming to REA on March 1, 1954, he spent 18 months in Brazil as consultant in the traffic department of the Brazilian Telephone Co.

In REA, Mr. Guengerich's primary responsibility will be the preparation of technical material for making comparisons between manual and dial operation. In addition, his varied experience in the telephone industry will enable him to be of service in many other phases of telephone operation. He will be available for consultation on individual projects.

Mr. Guengerich started with the Southwestern Bell Co. in St. Louis in 1912 and worked on various traffic field and staff assignments, specializing on toll service. In 1927, he went to the Department of Operation and Engineering, A. T. & T. Co., New York, continuing there until his retirement. He worked on traffic costs and coefficients and later on traffic engineering phases of new developments. This included tele-typewriter exchange service, mobile

radio service, and nationwide toll dialing.

Mr. Guengerich was born in Joplin, Mo., and took his degree in electrical engineering at the University of Missouri.

Mr. Chapman, E. E., retired from the Bell System in New York on March 1, and joined the REA staff on March 2, 1954. For many years he was in charge of studies and field tests on crosstalk and other interference at voice, carrier and radio frequencies in local and toll telephone lines. He has obtained patents in connection with this work and is the author of several technical papers.

Widely known for his contributions to crosstalk theory and to the development of practical methods for controlling crosstalk between communication circuits, Mr. Chapman will serve REA as a consultant in this field and in the general field of transmission problems. This experience is valuable to REA since it is expected that subscriber carrier will play a vital role in reducing costs of rural service. Reduction of crosstalk is an important and sometimes controlling factor in realizing economies of multi-channel carrier systems.

Before joining the Bell Laboratories in 1934, Mr. Chapman was with the A. T. & T. Co., in the Department of Development and Research.

Four More Cutovers

Four more REA telephone borrowers reported cutting over one or more of their exchanges during April. This brings the total to 84.

The new cutovers were made by the Traverse Bays Telephone Co., Central Lake, Mich.; Bay Springs Telephone Co., Bay Springs, Miss.; Brantley Telephone Co., Nahunta, Ga.; and the Planters Rural Telephone Co., Millen, Ga.

LOANS APPROVED DURING APRIL 1954

Electrification

\$700,000	Wayne-White Counties Electric Cooperative, Fairfield, Ill.
30,000	Farmers Electric Cooperative, Clovis, N. Mex.
100,000	Blue Ridge Electric Membership Corp., Lenoir, N. C.
345,000	Public Utility Dist. No. 1 of Klickitat Co., Goldendale, Wash.
630,000	Owen County Rural Electric Cooperative, Owenton, Ky.
325,000	Firelands Electric Cooperative, New London, Ohio.
50,000	Haywood Electric Membership Corp., Waynesville, N. C.
50,000	KEM Electric Cooperative, Linton, N. Dak.
1,130,000	Woodruff Electric Cooperative, Forrest City, Ark.
20,000	Petit Jean Electric Cooperative, Clinton, Ark.
415,000	Grady County Electric Membership Corp., Cairo, Ga.
560,000	Grayson Rural Electric Cooperative, Grayson, Ky.
312,000	Mor-Gran-Sou Electric Cooperative, Flasher, N. Dak.
220,000	Cumberland Electric Membership Corp., Clarksville, Tenn.
80,000	Claiborne Electric Cooperative, Homer, La.
900,000	Gascosage Electric Cooperative, Dixon, Mo.
385,000	Claverack Electric Cooperative, Towanda, Pa.
195,000	Black River Electric Cooperative, Sumter, S. C.
440,000	Vigilante Electric Cooperative, Dillon, Mont.
50,000	C & L Rural Electric Cooperative, Star City, Ark.
65,000	Roseau Electric Cooperative, Roseau, Minn.
235,000	Price Electric Cooperative, Phillips, Wis.
300,000	South Kentucky Rural Electric Cooperative, Somerset, Ky.
315,000	Southern Indiana Rural Electric Cooperative, Tell City, Ind.
90,000	Cherokee County Rural Electric Cooperative, Cherokee, Iowa.
880,000	Tri-County Electric Membership Corp., Goldsboro, N. C.
1,235,000	Choctaw Electric Cooperative, Hugo, Okla.
1,080,000	Pedernales Electric Cooperative, San Marcos, Tex.
390,000	San Patricio Electric Cooperative, Sinton, Tex.
25,000	Price Electric Cooperative, Phillips, Wis.
50,000	Ashley-Chicot Electric Cooperative, Hamburg, Ark.
115,000	Pataula Electric Membership Corp., Cuthbert, Ga.
75,000	Sheridan County Electric Cooperative, Medicine Lake, Mont.
565,000	Greenwood County Rural Electric System, Greenwood, S. C.
125,000	Little River Electric Cooperative, Abbeville, S. C.
1,360,000	Cloverland Electric Cooperative, Sault Ste. Marie, Mich.
967,000	Mecklenburg Electric Cooperative, Chase City, Va.

Telephone

\$367,000	Chariton Valley Telephone Corp., Macon, Mo.
120,000	Cameron Telephone Co., Sulphur, La.
203,000	Park Region Mutual Telephone Co., Underwood, Minn.
839,000	Horry Telephone Cooperative, Conway, S. C.
50,000	Reserve Telephone Co., Reserve, La.
66,000	Yeoman Telephone Co., Yeoman, Ind.
255,000	Albion Telephone Co., Albion, Idaho.
730,000	Northern Telephone Association, Shelby, Mont.
402,000	Ballard Rural Telephone Cooperative, LaCenter, Ky.
746,000	Golden West Telephone Cooperative, Quinn, S. Dak.
194,000	East Ozark Rural Telephone Co., Bloomsdale, Mo.
170,000	Scott County Telephone Cooperative, Gate City, Va.
125,000	East Ascension Telephone Co., Gonzales, La.
12,000	Hebron's Home Telephone Co., Hebron, Maine.
429,000	Brookings Co. Telephone Cooperative, Brookings, S. Dak.
114,000	South Plains Telephone Cooperative, Lubbock, Tex.
41,000	Cimarron Valley Telephone Association, Meade, Kans.
794,000	Foothills Rural Telephone Cooperative, Paintsville, Ky.
254,000	Tri-County Telephone Association, Basin, Wyo.

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IRRIGATING THE ELECTRIC WAY (U. S. Department of Agriculture Slidefilm C. 38) has just been produced by REA. The strip covers the many benefits of flood and sprinkler type of irrigating, and the advantages of driving the pumps by electricity.



If you want a copy of this double-frame, full-color filmstrip as a part of your permanent library, just send your requests to REA, Washington 25., D. C.

